



*Andrew Junkin
CFA, CIMA, CAIA
Managing Director*

*Thomas Toth, CFA
Vice President*

July 31, 2008

Ms. Anne Stausboll
Interim Chief Investment Officer
California Public Employees' Retirement System
400 Q Street
Sacramento, CA 95814

Re: Internal Fixed Income Program Review

Dear Anne:

Wilshire has conducted a review of the internal fixed income team's personnel, investment process, and resources. This review was conducted as part of Wilshire's contractual requirement to periodically review all of the internal asset management functions. In general, we found that the team manages the portfolio in an effective, risk controlled manner and has state of the art systems to assist in monitoring and managing the portfolio.

The fixed income team actively manages portfolios with various duration targets ranging from highly liquid, very short term Fed Funds-benchmarked portfolios to longer duration portfolios benchmarked to the Lehman Long Liability Index. Additionally, the fixed income team invests across the credit spectrum from US Treasury bonds to high yield bonds and in a variety of structured fixed income securities, such as collateralized mortgage obligations and asset backed securities. This document serves as a review of the entire fixed income management process. We have also included a multi-page table at the end of this review which is similar to what we would complete for an external manager, detailing our opinion on specific aspects of the fixed income program.

As part of our review, Wilshire met with key Staff members involved with the management and trading of the various portfolios. We discussed the strategy for each portfolio, how research is conducted, what risk controls are in place, how the portfolio is traded and how feedback and input is provided at each step of the investment process. Each of the Staff members discussed the specific frameworks they have developed over time to assist in constructing and monitoring their respective sectors. This is particularly important as they seek to sift through a diverse opportunity set of fixed income securities.

These frameworks also allow the staff to manage their portfolios in a more consistent and efficient manner, which is particularly important given human resource capacity issues.

In short, we believe the investment approach is appropriate for the various CalPERS portfolios; Staff is aware of and appropriately manages the risks faced by the portfolios; Staff, though nearing capacity limits, has sufficient resources at its disposal; and that the custom-designed (by an external third-party) portfolio management and trading platform is high quality and helps to achieve the program's goals. As CalPERS' various programs continue to grow and the scope of the fixed income team's duties expands, additional staff members are likely to be needed.

Furthermore, we believe Staff has exhibited a high degree of diligence to reduce transactions costs and achieve best execution. Given that Staff selected the trading and management platform in a competitive process and has fully customized all software to CalPERS' specific needs, we believe that Staff is using high quality technology systems that are appropriate for the team's operations. Additionally, we believe that Staff is soliciting bids from a sufficiently wide array of brokers to ensure that all CalPERS trades are executed without greater market impact or transaction costs than would be true for a similar portfolio managed by a top-tier third-party.

Staff has sector specialists that focus on credit (corporate), structured (mortgage backed, asset-backed, etc.), and government securities who are highly knowledgeable and manage respective sectors of the portfolio against the appropriate sectors of the portfolios' benchmarks. The SIO-Fixed Income has overall responsibility for all portfolios' sector weights and duration. The investment philosophy is based on garnering a yield advantage in each sector compared to the sector's yield, but without substantially increasing the risk of default in the sector. Duration is normally very close to the duration of the benchmark.

Wilshire views the overall investment approach quite favorably. Staff's desired yield advantage, although not an "all weather" strategy, tends to perform very well across a market cycle. As we noted in our last review of this program, the strategy is likely to underperform when credit and structured spreads widen, as has occurred in the last 12 months. Additionally, since Staff is not making significant duration bets, the term structure aspect of the performance of the portfolio should track the benchmark fairly closely when interest rates rise or fall.

As a result of this review, we continue to be confident in the ability of CalPERS' Staff to effectively manage the fixed income portion of CalPERS' various programs.

Limited Duration

CalPERS manages two limited duration portfolios: High Quality LIBOR (HQL) and Short Duration Fund (SDF). The performance objective for HQL is Fed Funds + 8 basis

points and the objective for SDF is Fed Funds plus 30 basis points. Since neither benchmark has credit risk and both have a known duration (overnight), Staff can add value by managing a portfolio that has some credit exposure and some increase in duration. About 97% of the HQL portfolio and 64% of the SDF portfolio is invested in floating rate securities and the majority of the portfolio is invested in asset backed securities (autos, credit cards, home equity loans, student loans, CMOs, etc.), all with very short maturities. The securities are highly rated securities with the substantially all of HQL and more than three quarters of SDF rated AAA or A1/P1. Stress testing is performed on structured securities in order to understand and appropriately manage how changes in interest rates will affect the price of the securities. The target duration of HQL is 30 days and the target duration of SDF is 90 days, so interest rate risk is considered minimal.

Long Duration

The bulk of the PERF's fixed income assets are invested in long duration fixed income securities per the direction of the Investment Committee, which is appropriate given the long duration of the PERF's liabilities. This portfolio is managed against the Lehman Long Liability Index. For internal management purposes, Staff has sector specialists covering government bonds, structured securities, and corporate bonds. The sector specialists manage their sectors against the performance and characteristics of the respective sectors of the index. Each sector specialist, as well as the SIO-Fixed Income, emphasized the importance of having an established framework with which to construct and monitor a portfolio. In this way, the sector specialists maintain consistency across time as they evaluate securities for inclusion/exclusion from the portfolio.

The SIO-Fixed Income has overall responsibility for managing the duration of the portfolio and the sector mix. The SIO-Fixed Income determines the appropriate mix of sectors based on the relative attractiveness of the sectors, comparing the option adjusted spread of each sector and stress testing the forecasted results of the portfolio under different economic assumptions. The table below is used to visualize how each sector fits within the total portfolio.

Sector	Short	Medium	Long
Structured			
Credit			
Government			
Opportunistic			

The sector specialists are intimately involved in sourcing and evaluating securities that might fit into the opportunistic bucket, although the SIO-Fixed Income is the ultimate arbiter of that portion of the portfolio. Earlier this year, Staff requested and received

expanded authority within the Opportunistic bucket. Staff has indicated that they are looking to selectively add positions across a few sectors to take advantage of mispricings in the market.

Staff has also recently been granted the authority to sell securities short, although at this time, they have not used the authority. They have, however, worked to ensure the proper back office and operational enhancements have been made to accurately account for these types of transactions and the vehicles (including derivatives) used. Wilshire views these developments very positively as they indicate a continual effort to enhance the capabilities of the internal team, and ultimately can improve the performance of the Internal Fixed Income portfolio.

The SIO-Fixed Income is also able to vary the duration of the portfolio by +/- 20% versus the benchmark per policy, although that size of a duration mismatch has not occurred in the recent past and is not expected to going forward. Staff is required to report to the Investment Committee the duration and the sector weights of the portfolio, relative to the benchmark.

Risk Factors

The two primary risks of investing in fixed income securities are well known: interest rate risk and default risk. Wilshire believes that Staff is monitoring and managing these risks appropriately. The duration of the portfolio is kept very close to the duration of the index, ameliorating much of the interest rate risk relative to the index. However, absolute interest rate risk will always be present due to the nature of the long duration of the portfolio. Again, this long duration is appropriate, given the duration of CalPERS' liabilities, and is incorporated in CalPERS' asset allocation studies. Default risk is managed by limitations on the size of any corporate issuer in the total portfolio. Default risk cannot be eliminated without forgoing the potential return of corporate bonds and investing solely in treasury securities, and academic studies clearly illustrate that the increased yield from corporate bonds over a market cycle fully compensates for any normal level of default risk. Staff has demonstrated the ability to monitor and appropriately manage these risks in the portfolio.

There are, however, two risks that are CalPERS-specific. First, CalPERS has invested in systems and technology to provide the fixed income team with state of the art tools. These systems more than adequately address the three primary purposes necessary for managing a fixed income portfolio: data management, data manipulation, and use of the data within the fixed income department. However, this should not be viewed as a one-time investment. These tools and systems need to be maintained and upgraded as necessary so that the team does not face a competitive disadvantage versus other investors. To date, this has not been an issue and Staff continues to receive on-going upgrades to their toolsets.

Second, CalPERS, as a governmental organization, faces some organizational risks that for-profit enterprises do not face. For example, non-governmental organizations can induce key employees to stay with the firm long-term by offering ownership in the enterprise. CalPERS cannot match this retention incentive and is more at-risk for losing intellectual capital than a for-profit enterprise would be. The SIO Fixed Income has 20 years of experience within the organization and provides a level of leadership within the Fixed Income group which would be difficult to replace, and as such, presents a high level of key person risk. That said, the Investment Officers within each sector also bring a high level of expertise and knowledge about the portfolio to the table and would over time be able to handle a transition at the senior levels. It is also worth noting, that the turnover within the senior ranks of the Fixed Income group has been low. Additionally, attracting superior candidates is more difficult given the lack of long term incentives relative to private organizations as was mentioned earlier. With the pending departure of senior personnel from the Government portion of the portfolio management team, recruiting a suitable replacement candidate could be challenging. This personnel risk is an ongoing factor for the entire CalPERS organization, and has been discussed previously in our reviews of the other investment teams within CalPERS.

Conclusion

In brief, we believe that Staff has demonstrated the ability to both effectively and efficiently manage CalPERS' fixed income portfolios. The investment philosophy is appropriate to CalPERS' needs and sufficient risk controls are present to mitigate many of the risks of managing fixed income portfolios. Wilshire's score on this strategy of 80% or 241 out of 300 possible points reflects the strong team and clear success demonstrated at managing the portfolio as charged. The main reasons for a less-than-perfect score overall are largely due to organizational-level issues such as senior turnover and lack of long-term retention incentives rather than issues specific to the fixed income group.

Should you require anything further or have any questions, please do not hesitate to contact us.

Best regards,

A handwritten signature in black ink, appearing to read "Ann Jinn".A handwritten signature in black ink, consisting of stylized, bold strokes.

Strategy Evaluation: CalPERS Internal Fixed Income Program

Organization (0-100)

SCORE:

COMMENTS:

Ownership/Incentives (0-30)
 Direct Ownership/Phantom Stock
 Profit Sharing
 Performance Bonus
 Depth of Incentives

Employees receive performance bonus only. Bonus is driven by multiple factors, some geared around the investment performance generated by the fixed income team but others related to total fund performance. Obviously, no equity ownership is available for employees.

Score: 5

Team (0-25)
 Communication
Role of Manager, Research, and Operations
 Longevity of Team

Team currently is appropriate given size of operation and portfolio, but nearing capacity limits of the current team size. Additional staffing would reduce the key-person risk and allow Staff to focus on more value-added opportunities. The team members have back-ups from others on the team. Communication links are informal and proximity of team members is close, adding to the team's ability to communicate quickly.

Senior members of the team have been together for several years, although some junior members are newer. Additionally, Rob Grady will be retiring this year which removes a senior member of the government bond team. Key personnel changes are always a concern and deserve close scrutiny for underlying causes and impacts on the team. At this time, there is no reason to believe the remaining team members cannot handle Mr. Grady's responsibilities.

Score: 15

Quality of Key Professionals (0-15)
 Experience
 Quality of Leadership
 Quality of Education

Education, experience and technical skill set of portfolio managers and SIO-Fixed Income are exceptionally good, by any standard. Additionally, the number of open positions within the group is down from last year. Leadership skill of SIO-Fixed Income is very good and his tenure with CalPERS is the longest of the senior investment staff. This individual has had more than 20 years of internal asset management at CalPERS. Understands risks and issues to be monitored or resolved regarding strategy. Appropriately concerned about process, reporting, and monitoring.

Score: 15

Internal Fixed Income Program Review
July 31, 2008
Page 7

Turnover of Senior Professionals (0-15)

Low (<10%), Medium (<20%), High (>20%)

Score: 10

Staff turnover for CalPERS (as an organization) is high at both the senior and junior levels, including the departure of 3 CIO's in the last several years. Lack of long-term retention incentives lead some staff to consider the organization as a "stepping stone" to better compensation in similar positions elsewhere. However, turnover on the fixed income team has been more limited than the organization as a whole, particularly at the senior levels.

Commitment to Improvement (0-15)

Clear Mission
Re-investment
Process Enhance

Score: 15

Strategies have clear mission and objectives. Resources are excellent and currently sufficient for the current tasks assigned to team; however, additional staff is likely to be needed as additional fixed income programs are added.

Further, Staff have demonstrated a forward looking commitment to improve the portfolio and have actively looked to incorporate changes to the Investment Policy Statement along those lines, i.e. the ability to short select securities within the portfolio.

Philosophy/Process (0-100)

SCORE:

COMMENTS:

Market Anomaly/Inefficiency (0-40)

Permanent or Temporary
Clear Identification
Where and How Add Value
Empirical or Academic Evidence to Support

Score: 35

Sector specialists (Governments, Structured Products, Credit) actively manage respective parts of the portfolio in an attempt to outperform through yield curve positioning and issue selection. SIO-Fixed Income oversees the total allocation to each sector and the portfolio's overall interest rate positioning.

Value has been added by focusing on maintaining a yield advantage in the spread sectors. Yield advantage strategies are not "all weather" strategies – they will underperform when spreads are widening – but the consistent additional yield in the portfolio versus the benchmark compounds to the advantage of CalPERS over longer time periods.

High score given as the yield advantage approach is appropriate and consistently applied across all sectors of the portfolio.

Internal Fixed Income Program Review
July 31, 2008
Page 8

Information (0-15)

Unique Sources, Unique Processing

Score: 12

Information sources are primarily external, which is appropriate given the size of Staff relative to the size of the market (more than 10,000 available securities). In the case of structured products, the underlying securities are analyzed at a granular level. On the corporate side, senior staff felt particularly confident of their research capabilities. Staff also has frequent contact with outside managers to gain information.

High score given, but this score could improve with the addition of staff members to expand Staff's ability to internally research securities.

Buy/Sell Discipline (0-15)

Disciplined/Structured Process
Quantitative and Qualitative Inputs

Score: 15

Buy/sell discipline based on relative value of securities. If Staff has an opportunity to "upgrade" one of the holdings in the portfolio, a trade will be initiated by the appropriate sector specialist, who has intimate knowledge of his/her sector.

Portfolio Construction (0-15)

Benchmark Orientation
Risk Controls
Ongoing Monitoring

Score: 15

Portfolio construction techniques and monitoring are very good with industry-leading software. SIO-Fixed Income has ultimate oversight as to the construction of the portfolio. The Strategy has the appropriate policies and procedures on a documented basis in place and a "checklist system" to ensure compliance.

Quality Control (0-15)

Return Dispersion
Performance Attribution
Performance Consistency
Style Drift

Score: 15

The process has risk controls built in with regard to sector weights and duration. Attribution analysis provided by BlackRock's Aladdin system. Within the portfolio management team there is good separation of responsibilities as well as back-up and cross-checks. Further, trade settlement and back-office support is separate from portfolio management. Wilshire has reviewed and had input into the drafting of the procedures manual that covers portfolio management, trading operations systems operations, and monitoring.

Resources (0-100)

SCORE:

COMMENTS:

Research (Alpha Generation) (0-40)

Appropriate for Product Style
Conducted Internally/Externally
Quantitative/Qualitative
Sufficient Databases and Models for
Research
How are Research Capabilities Enhanced

Score: 35

Much of the credit research is provided by external sources and synthesized by Staff. Structured research is conducted internally analyzing the underlying securities with regards to quality and risk of prepayment.

Additional internal research could be performed by expanding Staff. This additional research could then be used in conjunction with the external research to help provide a more robust analysis of credit, although the head of corporate credit believes the current team is one of the strongest in recent memory.

Information/Systems Management (0-15)

Ability to Manage Large Flows of Data
Appropriate Systems for Research and
Management

Score: 15

Hardware and software support is very strong. Members of Staff all have access to Bloomberg for research and information on current market conditions. Trading and portfolio management tools were custom-designed to CalPERS' specifications by a leading external vendor.

Marketing/Administration/Client Service (0-15)

Dedicated and Knowledgeable Group
Quality of Materials/Presentations of RFPs
Responsiveness
Measuring Client Satisfaction

Score: 14

Since marketing and client service are not involved, unlike external sources for such a strategy, the full resources of the fixed income staff will be devoted to CalPERS, as the portfolio managers will not have to travel to service other clients or market to prospects.

End client (Investment Committee) has regular meetings that usually require SIO and Portfolio Manager, but team is able to continue to operate in their absence.

As CalPERS expands its scope and potentially begins to offer its investment programs to outside parties, this area will require additional resources.

Trading (0-30)

Turnover Relative to Process
Sophistication of Trading Process
Measurement of Trading Costs

Score: 25

CalPERS' trading room is very sophisticated, was constructed in the last two years, and has subscriptions to all of the most popular trading resources, i.e. Bloomberg, Instinet, ITG, WM, etc. There is sufficient back-up and separation of responsibilities in the trading function. There is ex-post review of trading execution, but as with all trading reviews it can be improved.